WHAT IS CLAIMED IS:

1. An isolated nucleic acid having the sequences depicted in Figure 1, and defined by the group consisting of SEQ ID NO: 1, SEQ ID NO: 2 and SEQ ID NO: 3.

2. An isolated nucleic acid comprising a nucleotide sequence that encodes the polypeptide defined by the group consisting of SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6 and SEQ ID NO: 7.

3. An isolated nucleic acid that hybridizes to a nucleic acid as defined in claim 1 under stringent hybridization conditions.

4. A nucleic acid vector comprising a nucleic acid as defined in claims 1 or 2 operably linked to a transcription regulatory element.

5. A cell comprising a vector as defined in claim 4.

6. A cell as defined in claim 5, wherein said cell is selected from a group consisting of bacterial, fungal, insect, and mammalian cells.

7. A method for producing a polypeptide, which comprises:

(i) culturing a cell as defined in claim 5 under conditions suitable for the expression of DRAP polypeptide; and

(ii) recovering said polypeptide from said culture.

8. An isolated polypeptide having the amino acid sequence defined by the group consisting of SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6 and SEQ ID NO: 7.

9. An antibody that specifically recognizes DRAP polypeptide.

10. A fragment of DRAP polypeptide or function-conservative variants of said polypeptide, said fragment or function-conservative variant being characterized in that, it carries out recombinase/topoisomerse activity associated with the DRAP protein, and fragment or fragments thereof.

11. A method for isolating genomic DNA comprising introducing an oligonucleotide and DRAP into a cell, homologously recombining said oligonucleotide with genomic DNA homologous to said oligonucleotide and isolating said genomic DNA.

12. A method for targeting mutagenesis of a defined segment of DNA comprising introducing DRAP and an oligonucleotide homologous to said DNA segment together with DNA comprising said segment.

13. A method for the removal of a defined segment of DNA comprising introducing DRAP and an oligonucleotide homologous to said DNA segment together with DNA comprising said segment.

14. A method for cloning a defined segment of DNA comprising introducing DRAP and an oligonucleotide homologous to said DNA segment together with DNA comprising said segment.

15. A method for mapping a defined segment of DNA comprising introducing DRAP and an oligonucleotide homologous to said DNA segment together with DNA comprising said segment.

16. A method of promoting gene disruptions of a defined segment of DNA comprising introducing DRAP and an oligonucleotide homologous to said DNA segment together with DNA comprising said segment

17. A method for the experimental and therapeutic application of DRAP driven genetic modification of a gene responsible for a genetic disease comprising introducing DRAP and an oligonucleotide homologous to said gene into a cell.